

Name Answer Key Date _____ Per. _____ LE.5 _____

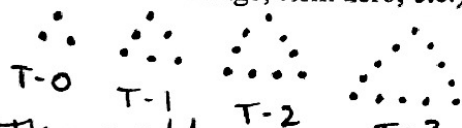
Demonstration of Understanding-Linear Functions

IF.6 _____
REL.11 _____
CED. 2 _____

Complete each question thoughtfully and thoroughly. Show all work! After each problem, rate your understanding/confidence on a scale from 1-4 (4 being the highest).

(LE.5)

1. Describe why this is a linear pattern. (Use words like rate of change, term zero, etc.)



The pattern increases with a constant rate of change of 3 every term. The pattern starts at 3 dots and continues to increase.

2. If a Hershey's employee is paid 6.1 cents per hour. How much money will they take home after working for 20 hours? Assume the relationship between take home money (M) and hours worked (h) is represented as $M = .061h$.

$$M = .061(20)$$

$$M = 1.22$$

A Hershey's employee will take home \$1.22 after 1 hour of work.

(IF.6) Use the slope formula to calculate the slope given two points.

3. $(6, 2), (9, -1)$

4. $(5, 1), (9, -1)$

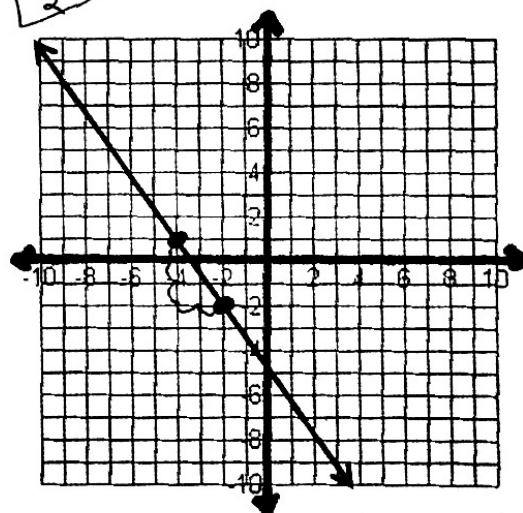
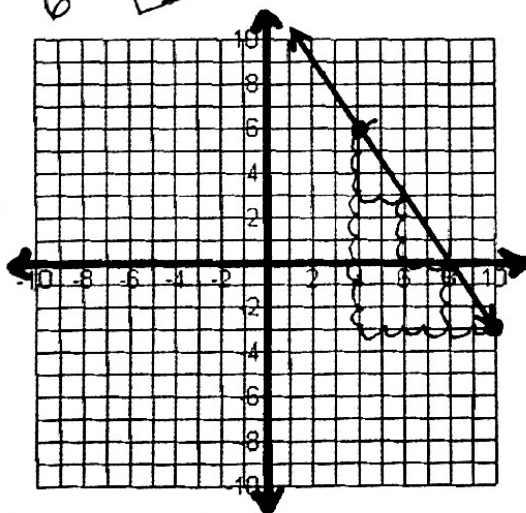
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 2}{9 - 6} = \frac{-3}{3} = -1$$

$$m = \frac{-1 - 1}{9 - 5} = \frac{-2}{4} = -\frac{1}{2}$$

(IF.6) Determine the slope of the line by showing the rise over run with stairs on the graph and reducing the fraction.

5. $m = \frac{-9}{6} = -\frac{3}{2}$

6. $m = \frac{-3}{2}$



(IF.6) Identify the slope in the following equations.

7. $y = 3x - 1$

$m = 3$

8. $y = \frac{2}{5}x - 1$

$m = \frac{2}{5}$

9. $y = 3 = -\frac{1}{4}(x + 2)$

$m = -\frac{1}{4}$

10. $y - 5 = 6(x + 1)$

$m = 6$

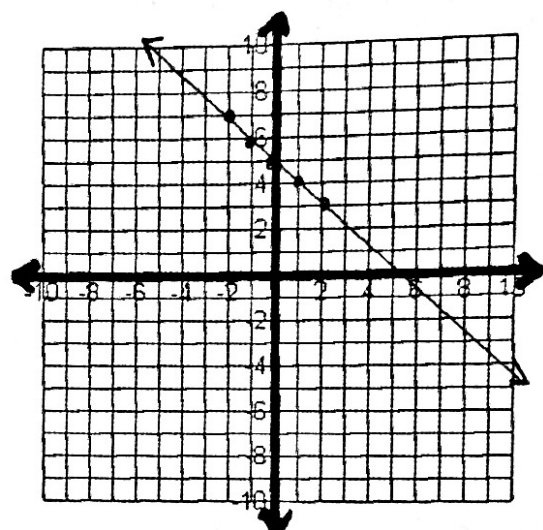
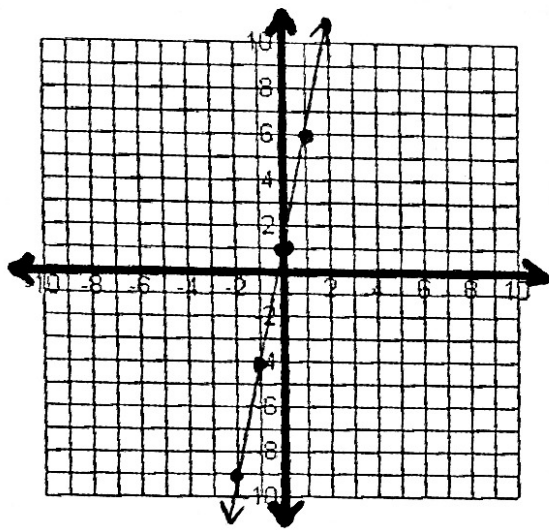
(REI.11) Graph the following equations by making an equation-table of values and plotting the points.

11. $y = 5x + 1$

12. $y = -x + 5$

x	$y = 5x + 1$	(x, y)
-2	$y = 5(-2) + 1$	$(-2, -9)$
-1	$y = 5(-1) + 1$	$(-1, -4)$
0	$y = 5(0) + 1$	$(0, 1)$
1	$y = 5(1) + 1$	$(1, 6)$
2	$y = 5(2) + 1$	$(2, 11)$

x	$y = -x + 5$	(x, y)
-2	$y = -(-2) + 5$	$(-2, 7)$
-1	$y = -(-1) + 5$	$(-1, 6)$
0	$y = -(0) + 5$	$(0, 5)$
1	$y = -(1) + 5$	$(1, 4)$
2	$y = -(2) + 5$	$(2, 3)$



(REI.11) Graph the equation by finding the x & y-intercepts.

13. $y = 5x + 2$

$$0 = 5x + 2$$

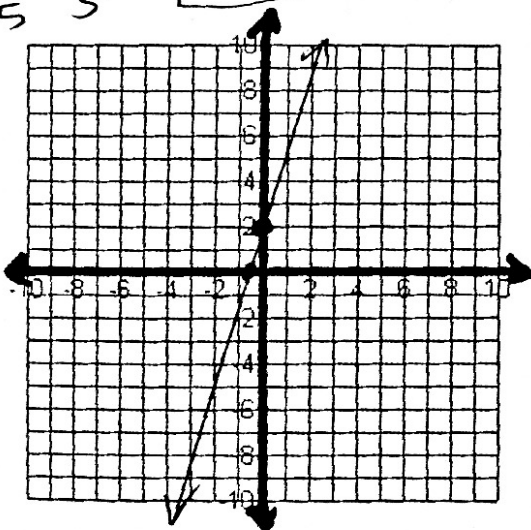
$$-2 = 5x$$

$$\frac{-2}{5} = \frac{5x}{5}$$

$$x = -\frac{2}{5}$$

$$y = 5(0) + 2$$

$$y = 2$$



14. $y = -2x + 6$

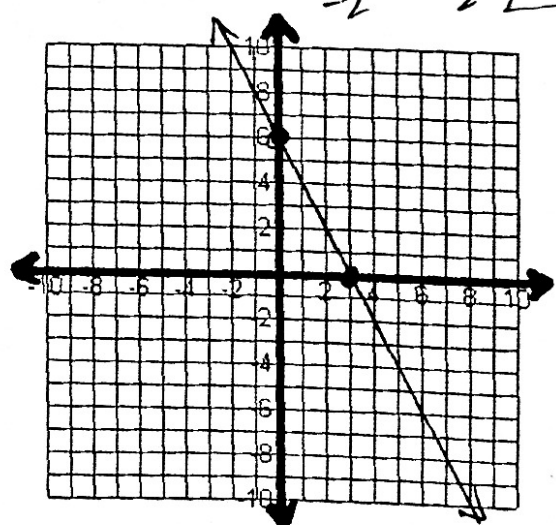
$$y = -2(0) + 6$$

$$y = 6$$

$$0 = -2x + 6$$

$$-6 = -2x$$

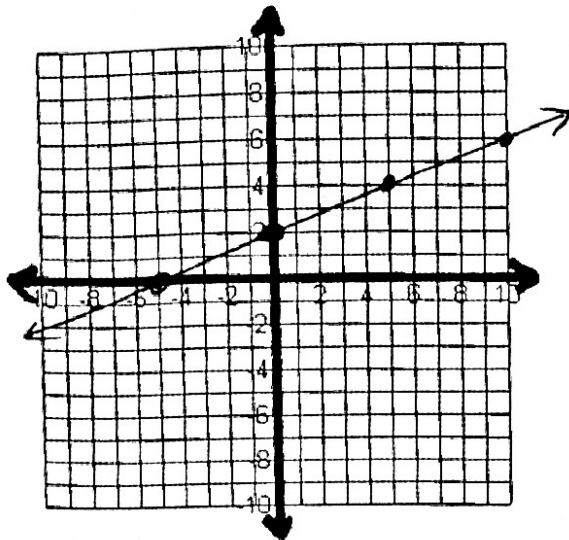
$$\frac{-6}{-2} = \frac{-2x}{-2} \quad x = 3$$



(REL. 11) Identify m and b and graph the equation.

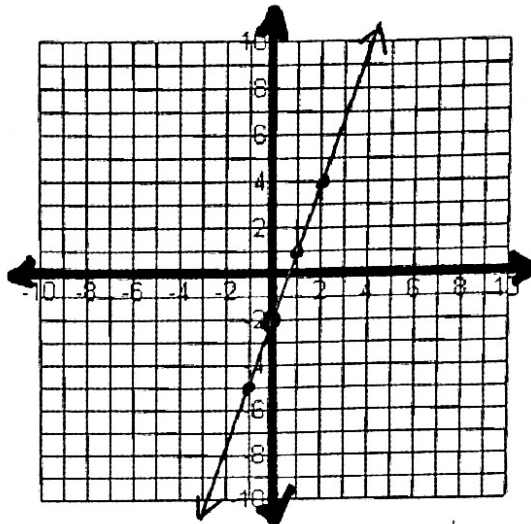
15. $y = \frac{2}{5}x + 2$

$m = \frac{2}{5}$ $b = 2$



17. $y = 3x - 2$

$m = 3$ $b = -2$



(CED.2) Write the slope-intercept equation, given the following information. $y = mx + b$

18. $(3, 0), m = -2$

19. $(2, 4), (-2, 4)$

$0 = -2(3) + b$
 $0 = -6 + b$
 $+6 \quad +6$
 $b = 6$
 $y = -2x + 6$

$m = \frac{4-4}{-2-2} = \frac{0}{-4} = 0$
 $4 = 0(-2) + b$
 $4 = b$
 $y = 4$

(CED.2) Write the point-slope equation given the following information. $y - y_1 = m(x - x_1)$

20. $(-2, 4), m = -3$

21. $(-4, 8), m = \frac{7}{2}$

$y - 4 = -3(x + 2)$

$y - 8 = \frac{7}{2}(x + 4)$

(CED.2) Write the equation in slope-intercept form.

22. $y - 5 = 6(x + 1)$

23. $y + 2 = -2(x - 5)$

$y - 5 = 6x + 6$
 $+5 \quad +5$
 $y = 6x + 11$

$y + 2 = -2x + 10$
 $-2 \quad -2$
 $y = -2x + 8$

(CED.2) Write the slope-intercept equation of the line passing through the point and parallel to the equation.

24. $(1, 1), y = 4x + 6$ $m = 4$

25. $(0, 5), y = -8x + 4$ $m = -8$

$y = mx + b$
 $1 = 4(1) + b$
 $1 = 4 + b$
 $-4 \quad -4$
 $-3 = b$
 $y = 4x - 3$

$y - y_1 = m(x - x_1)$
 $y - 5 = -8(x - 0)$
 $5 = -8x + b$
 $5 = b$
 $y = -8x + 5$